

Safety of motor bicycle riders on Sri Lankan Roads

AGHJ Edirisinghe, Dept. of Civil Engineering, Faculty of Engineering, University of Peradeniya.

Abstract :

Transport is a basic need of human beings in the present context. Motorized transport modes are popular through out the world, but in developing countries even for a shorter distance, generally people tend to use motorized transport modes. This may be due to high danger on roads for pedestrians and bicycles.

As the quality of public transport system in developing countries is deteriorating, public tend to look for alternatives. Motor bicycles are a very popular alternative in many developing countries. Again, due to poor public transport system and inefficiency in law enforcement, often riders tend to follow dangerous attempts while riding. This paper is on a study conducted in Kandy Town limits about the status of safety of motor bicycle riders and reasons including their behaviour.

Introduction:

Road traffic accidents is the number one cause of premature deaths all over the world. While there are various reasons for road traffic accidents, the significance factor depends on a country's economy, life style, infrastructure facilities, efficiency of law enforcement, etc..

The content of the present paper is about the safety of motor bicycle riders based on a field study carried out in Kandy town limits in Sri Lanka.

In addition to traffic accident records collected from police stations, some field surveys were conducted to study the behaviour of riders.

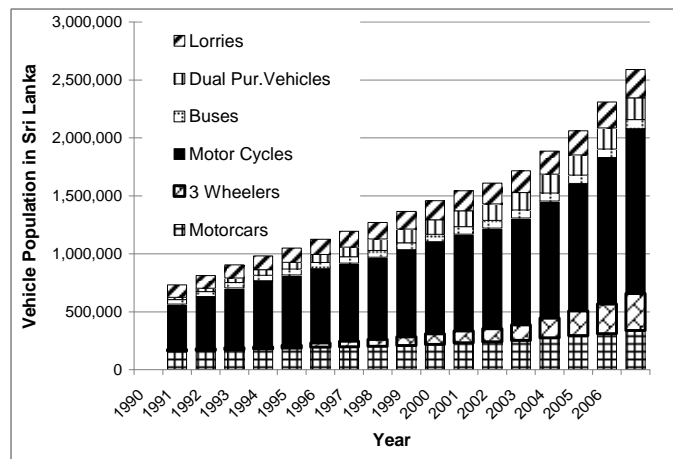


Fig. 1 Variation of Vehicle Population in Sri Lanka

Methodology

Vehicle population details were collected from department of motor traffic Sri Lanka to get some idea about the contribution of motor bicycles to traffic volume in the country. As shown in Fig. 1, Contribution of motor bicycles to traffic volume in the country during last few years is nearly 50%.

According to a survey carried out in the year 2007, contribution to traffic flow in Kandy town limits from Motor bicycles is around 20%.

Even though it is not as high as in countries like China, Taiwan etc, it is a reasonably a high value. Figure 2 shows the variation of vehicle volume with categories with the time of the day. It is relatively high in the morning rush hours compared to other times of the day, as many riders use their bicycles to travel to their working places while carrying their children to schools. Considering three main corridors leading to Kandy town, same scenario is visible as shown in Fig. 3. Most importantly it is rising regularly according to the available information from series of studies carried out by various researchers.

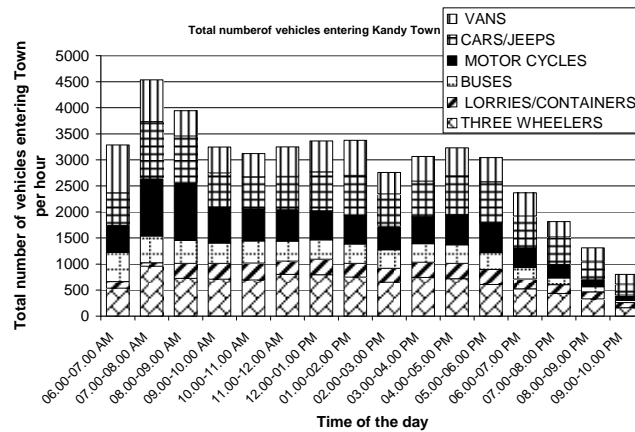


Fig. 2 Hourly variation of vehicles entering to Kandy Town Limits

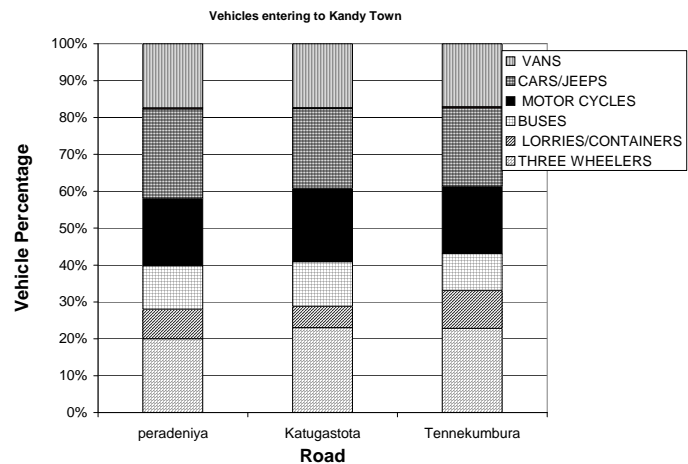


Fig. 3 Vehicle percentages entering to Kandy Town

Contribution to Accidents

Sri Lanka police department is the main responsible authority in recording and maintaining traffic accident reports in the country. Contribution of motor cycles for road traffic accidents was extracted from the records available at Sri Lanka Police department.

Table 1 clearly shows the comparison of contribution from different vehicle categories to road traffic accidents. Fig. 4 is a compilation of records for 5 years from 2001 to 2005 on contribution from different vehicle categories to road traffic accidents.

Though the percentages are not as high as vehicle population percentage of motor bicycles, as the absolute numbers are high and the seriousness of casualties are high it is an important factor to investigate reasons for road traffic accidents and propose remedies.

Table 1. Vehicles involved in road traffic accidents

| <i>Vehicles involved</i> \ <i>Year</i> | 2001 | 2002 | 2003 | 2004 | 2005 |
|--|-------------|-------------|-------------|-------------|-------------|
| Buses | 8386 | 8398 | 9474 | 8875 | 6522 |
| Lorries | 6445 | 7333 | 7172 | 6350 | 5904 |
| Containers | 796 | 778 | 579 | 690 | 701 |
| Motor cars | 8530 | 6521 | 8797 | 7483 | 5209 |
| Motor cycles | 5669 | 6768 | 7191 | 6417 | 7485 |
| Dual purpose Vehicles | 6287 | 5678 | 5580 | 3887 | 3628 |
| Jeeps | 1581 | 2513 | 1514 | 1356 | 1256 |
| Vans | 5989 | 7285 | 7625 | 7334 | 4103 |
| Three wheelers | 4912 | 5908 | 7378 | 7071 | 5502 |
| Pedal cycles | 1387 | 1530 | 1325 | 1288 | 814 |
| Tractors | | 590 | 579 | 707 | 533 |
| Land Vehicles | 971 | 438 | 436 | 1820 | 312 |
| Hit & Runs | 1104 | 1291 | 1704 | 1480 | 1202 |
| Total | 52057 | 55031 | 59354 | 54758 | 43171 |

Surveys conducted

To study the attitude and behaviour of motor bicycle riders, some surveys were conducted in and around Kandy town limits. In the surveys, use of safety and protective clothing, attitude behaviour were tested by observations and through a questionnaire.

Use of helmets, jackets are very high among riders and adult pillion riders as per the results of the surveys conducted. But when children are carried on bicycles, very rarely use safety and protective clothing.

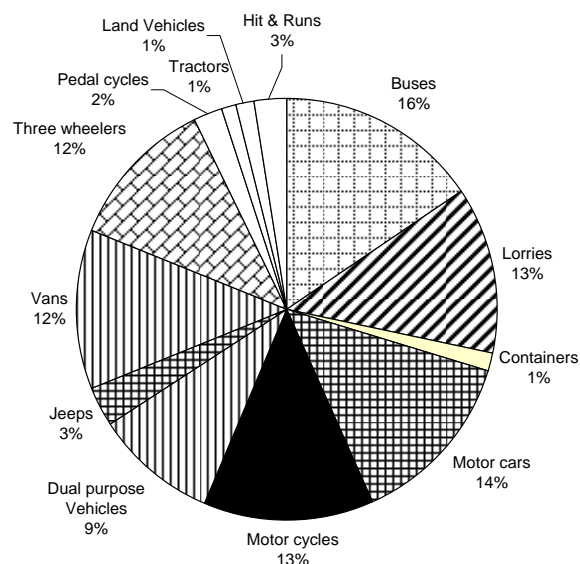


Fig.4 Contribution from various vehicle categories to road traffic accidents

Behaviour of Riders

A field survey was carried out to investigate the use of safety clothing and protective measures while driving. While observing, the riders and pillion riders were interviewed briefly to check their knowledge, attitude and behaviour while riding motor bicycles.

Table 2 Use of safety equipment by motor bicycle riders

| Safety measures used | Highway Category | | |
|----------------------|--------------------------------|---------------------------|----------------|
| | Major highway – Non urban area | Major highway- Urban area | Non-Urban area |
| Helmet | 88.2 % | 100 % | 100 % |
| Jacket | 88.2 % | 68.7 % | 52.9 % |
| Gloves | 23.5 % | 33.8 % | 0 % |
| Sunglasses | 5.9 % | 27.4 % | 0 % |

From the same group of respondents, their experience of accidents were asked and the results are as given below,

Number of accidents during last three years

- Free from accidents 58.7%
- Only once 37.7%
- More than one time 3.6%
-

Type of accidents

- Skidding 28%
- Collided with vehicle 28%
- Road side structure 18.7%
- Pedestrian 25.3%

The behaviour of motor bicycle riders were responded as follows,

Whether they Smoke while riding

- Never 59.4%
- Rarely 32.8%
- Sometimes 7.8%

Whether they Follow the road signs and road markings

- Always 43.8%
- Very often 12.5%
- Often 31.3%
- Sometime 12.5%

Use signals properly

- Always 46.9%
- Very often 17.2%
- Often 28.1%
- Sometime 7.8%

Use mobile phones while riding

- Never 15.6%
- Rarely 28.1%
- Sometimes 54.7%
- Often 1.6%

Frequency in which the pillion rider is asked to wear the helmet

| | |
|--|-------|
| • Always | 62.9% |
| • Often | 27.1% |
| • Rare | 10.0% |
| The reason for wearing helmet | |
| • Because of law | 71.7% |
| • For own safety | 28.3% |
| Type of helmet wearing | |
| • Head only | 50.0% |
| • Full face | 42.1% |
| • Head and chin | 7.9% |
| The reason for not wearing the helmet | |
| • Inconvenient | 58.9% |
| • Hot | 22.1% |
| • Problem to hair style | 5.3% |
| • Other | 13.7% |
| Frequency in which the helmets are worn in traveling short distance(about 2km) | |
| • Always | 27.4% |
| • Often | 54.2% |
| • Rare | 18.4% |
| Frequency in which the helmets are worn in traveling long distance(>2km) | |
| • Always | 96.8% |
| • Often | 2.1% |
| • Rare | 1.1% |

In addition to above, another survey was conducted to investigate the behaviour of riders with their children in morning hours. This survey was conducted on a major highway leading to Kandy town on a week day and following results were observed.

Concluding Remarks

Contribution from motor bicycle riders is very large to transport system in the country. While it is a relief to existing governments by a certain amount, due to increasing traffic accidents, government has to spend money in large sums.

According to the study, use of safety and protective clothing is very high by motor bicycle riders. Main reason to high accident rate is careless behaviour. Lack of law enforcement and condition of roads also contribute by a considerable amount. As per the results of surveys, an effective public awareness programs also will contribute significantly to bring down number of accidents.

Therefore, to control accidents and motor bicycle riders, it is very important to enforce existing rules and regulations and introduce new rules like wearing a sunglass, gloves and light during day time also.

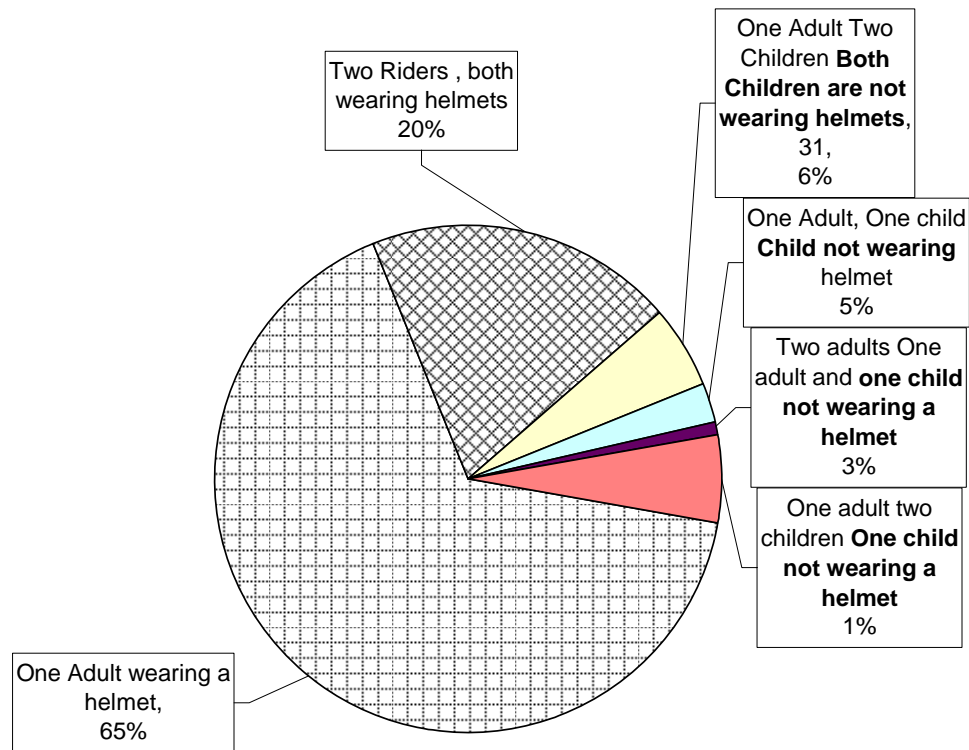


Fig. 5 Helmet wearing behaviour on riders and pillion riders

Maintenance of roads, specially the man hole covers and large bumps are very important, as they are highly hazardous for motor bike riders.

Acknowledgements :

Many past undergraduates in the faculty for assisting me to conduct field surveys and Sri Lanka Police Department and Sri Lanka Motor Traffic Department for providing information.

References:

1. Edirisinghe AGHJ (2006) "*Driver behaviour disciplines, Is it important for highway designs ?*" Proc. Annual sessions, IESL Central Province, Kandy pp 18-21
2. Edirisinghe, AGHJ(2006) "*Effect of attitude and behaviour of drivers on safety of road users*", Proc. 8th World Conference on Injury Prevention and Safety Promotion "Safety 2006". Durban in South Africa, 2-5, April 2006.
3. Edirisinghe, AGHJ (2006)"*Pedestrian safety on Sri Lankan Roads*" Proc. 8th World Conference on Injury Prevention and Safety Promotion "Safety 2006". Durban in South Africa, 2-5, April 2006 .